

From: Nathan Schumaker/COR/USEPA/US
To: Eric_Greenquist@blm.gov
Cc: Katie.Dugger@oregonstate.edu, Robert.Anthony@oregonstate.edu, Brendan_White@FWS.rtp.epa.gov, "Bruce G. Marcot" <brucem@SpiritOne.com>, Bruce_Marcot@FSNOTES.rtp.epa.gov
Bcc: Nathan Schumaker/COR/USEPA/US

Date: Tuesday, May 18, 2010 12:40PM
Subject: Re: Fw: Doodle: Link for poll "Barred owl simulations"

Just a few points of clarification here, based on statements from Eric's email:

"In HexSim, when a simulated female spotted owl encounters a habitat configuration that could support a functional territory, HexSim will determine, according to this probability, if the simulated spotted owl also encounters barred owls in the territory."

I'm not sure in what the probability is that's being referred to here. The territory construction process is somewhat stochastic, but we do not have a probability of territory establishment parameter. Successful territory establishment is a function of number of other parameters, the presence of conspecifics, and the resource map. But its not set based on a probability.

We cannot evaluate whether a barred owl is present during the territory construction process. This assessment would have to take place after the territory has been constructed.

However, the resource map the spotted owl is using in territory construction could be decremented in the presence of barred owls. So it would appear that there is little or no habitat where the barred owl is located.

Secondly, we could have spotted owls avoid barred owls (via repulsion) during the dispersal process. Together, these two mechanisms might keep spotted owls away from barred owls pretty effectively.

Finally, its easy to make territorial spotted owls move when their territory coincides with a barred owl territory. Again, this would happen after territory construction.

"In HexSim, when a simulated female spotted owl encounters a habitat configuration that could support a functional territory, it will form a territory according to the site-specific

colonization probability (which varies according to the presence/absence of barred owls). When a simulated female spotted owl occupies a territory, it subsequently will abandon that territory according the site-specific extinction probability (which also varies according to the presence/absence of barred owls)."

There is no colonization probability in the model (see comments above).

We can make spotted owls abandon a territory if it includes a barred owl. And this can be either deterministic or probabilistic.

"In HexSim, the fecundity and survival of a simulated female spotted owl would not exceed these rates (which vary according to the presence/absence of barred owls)."

Spotted owls can be stratified by how many barred owls their territory or home range overlaps. Then this stratification can be used to vary vital rates. This is pretty straightforward in the model.

Nathan

-----Eric_Greenquist@blm.gov wrote: -----

To: Katie.Dugger@oregonstate.edu, Robert.Anthony@oregonstate.edu, Nathan Schumaker/COR/USEPA/US@EPA
From: Eric_Greenquist@blm.gov
Date: 05/18/2010 11:46AM
Cc: Brendan_White@FWS.rtp.epa.gov, "Bruce G. Marcot" <brucem@SpiritOne.com>, Bruce_Marcot@FSNOTES.rtp.epa.gov
Subject: Fw: Doodle: Link for poll "Barred owl simulations"

Nathan, Bob and Katie: Please access the Doodle link, below, to schedule a meeting in Corvallis to discuss the feasibility of incorporating barred owl influences into HexSim.

My notes from today's conf. call (corrections/clarifications welcomed):

Our goal is simulate changes to regional spotted owl populations, over

time, in the presence of barred owls. Unfortunately, our ability to quantify the specific variables that express this influence is very limited.

We agreed to examine the feasibility of three processes:

1. Develop, for each province in the range, the probability that a spotted owl would encounter barred owls in a 500 acre core area (i.e., a group of hexagons equal in size to a spotted owl territory). Probabilities are based on the rates of occupancy of spotted owl territories by barred owls in the demographic study areas. In HexSim, when a simulated female spotted owl encounters a habitat configuration that could support a functional territory, HexSim will determine, according to this probability, if the simulated spotted owl also encounters barred owls in the territory.
2. Determine, for each province in the range, rates of spotted owl colonization and extinction in both the absence and presence of barred owls. Probabilities are based on observed rates in six demographic study areas. Since these study areas do not include the entire range, need to determine if we would use means for the entire range, extrapolate rates to nearest provinces with no data, or take another approach. In HexSim, when a simulated female spotted owl encounters a habitat configuration that could support a functional territory, it will form a territory according to the site-specific colonization probability (which varies according to the presence/absence of barred owls). When a simulated female spotted owl occupies a territory, it subsequently will abandon that territory according the site-specific extinction probability (which also varies according to the presence/absence of barred owls).
3. Define, for each province in the range, maximum rates of spotted owl fecundity and survival in both the presence and absence of barred owls.

In HexSim, the fecundity and survival of a simulated female spotted owl

would not exceed these rates (which vary according to the presence/absence of barred owls).

Data would come from the 2008 meta-analysis data.

Next step: Bob, Katie and Eric will discuss the feasibility of these

processes with Nathan.

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----- Forwarded by Eric Greenquist/EUFO/OR/BLM/DOI on 05/18/2010
12:40 PM

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05/18/2010 12:39

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Subject

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